TRIOPTICS

See the Difference.

ImageMaster® ProSort

Integrated Sorting and Testing Automation

ImageMaster® ProSort

Automated MTF-Testing and Sorting of Mobile Phone Lenses and Other Miniature Objective Lenses with High Throughput Performance

ImageMaster® ProSort combines fast sorting automation of tested lenses with the ImageMaster® PRO Series and its highly accurate MTF measurement system. It is the ideal solution for the quality control of mobile phone lenses and other miniature objective lenses. Objective lenses are reliably sorted with a cycle time of 1.5 seconds in up to 4 different quality classes. The operator only needs to load the machine with a measurement tray and start the process. The automated process and the direct data exchange with the ImageMaster® PRO reduce errors in a 24-hour operation, so that the ImageMaster® ProSort increases production output and yield.

Applications

Automated sorting for a wide range of samples with TRIOPTICS' tray-based measurement devices like:

- Digital camera lenses
- Lens elements
- Copier and enlarger lenses
- Contact and other ophthalmic lenses
- Video endoscope lenses and other medical optics
- Automotive objective lenses and cameras
- Wafer level lenses (diced WLO)
- Automotive cameras

ImageMaster® PRO – MTF Measurement System

Worldwide Fastest and Most Accurate MTF Measurement System

TRIOPTICS MTF-Tester ImageMaster® PRO 9 and PRO 10 are the most accurate and fastest measurement systems available on the market with a measurement time of 1.5 / 1.3 seconds per sample with the complete analysis of image plane measurement. Using up to 27 telescopes and 54 measurement points ensure highly precise measurements with up to 600 lp / mm spatial frequency. The ImageMaster® PRO 9 and PRO 10 systems offer highest measurement accuracy of:

- 1.0 % MTF on-axis and 2.0 % MTF off-axis for PRO 9
- 0.8 % MTF on-axis and 1.5 % MTF off-axis for PRO 10
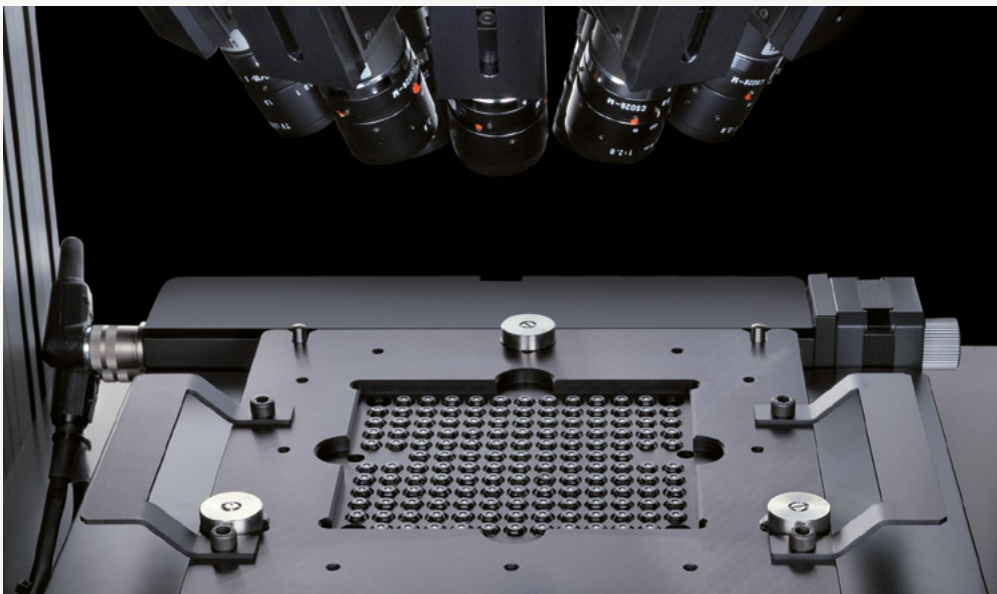
Measurement chamber of the ImageMaster® PRO

Direct Data Exchange Between the MTF-Tester and the Sorting Machine

Precise Testing Results

The integration of the two TRIOPTICS products, SortMaster PRO and ImageMaster® PRO, in one housing, form a perfect symbiosis for precise testing results of objective lenses used in smart phones, automotive application, security or medical instruments at a high and stable processing rate.

Cycle Time of 1.5 Seconds

Economic Objective Lens Testing and Sorting

ImageMaster® ProSort intelligently and reliably sorts objective lenses with a cycle time of 1.5 seconds in up to 4 different quality classes; with a stable around-the-clock production flow.
Lens assemblies are sorted from the high-precision measurement tray directly into the output blister trays.

Process Automation with Minimal User Interaction

No Operational Downtimes

The automatization of all measurement and sorting tasks fully avoids operational downtimes between work cycles. The automated handling of the trays from start to finish is organized in perfect synchronization for a continuous around-the-clock operation.
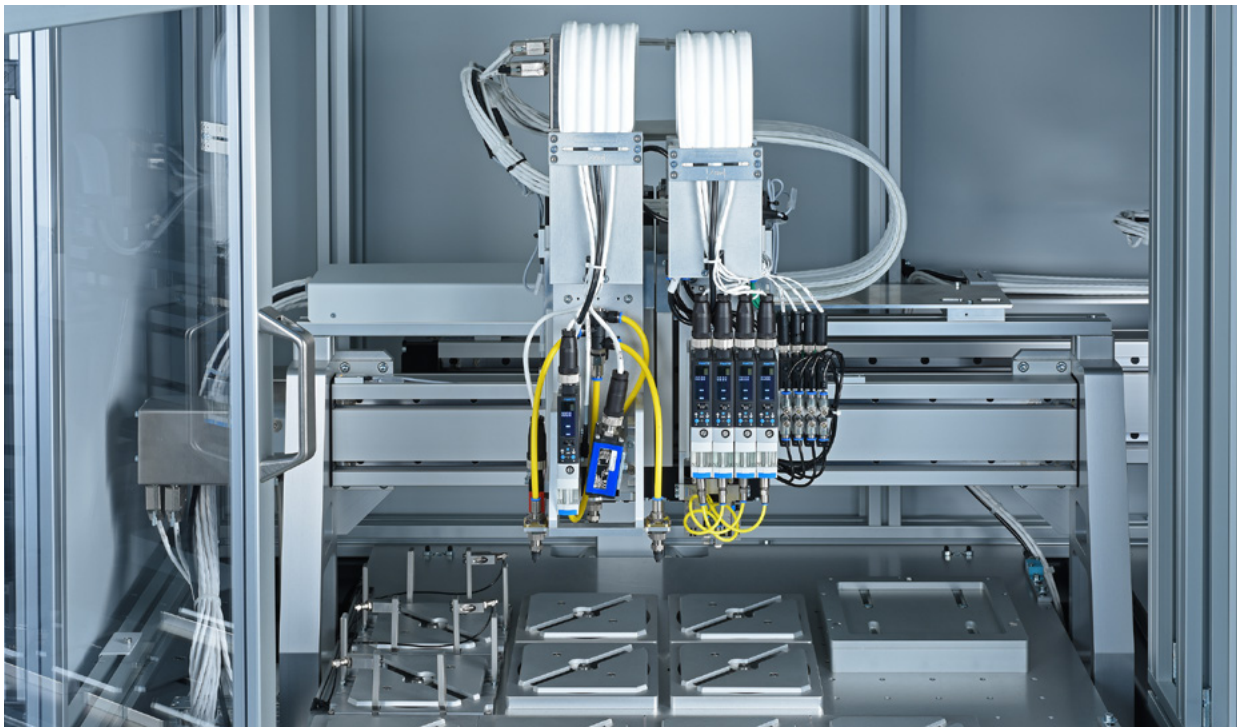
Sorting chamber of the ImageMaster® ProSort

One Single Operator for up to Four Automated Sorting Systems

Synchronized Automation of Full and Empty Blister Trays

The automation solution organizes filled and empty blister trays in accurate alignment with process actions. In a production environment, one single operator can interact with four ImageMaster® ProSort systems at the same time without any operational downtimes.

Operating Errors can Hardly Happen with ImageMaster® ProSort

Operating Errors are Now a Problem of the Past

Operator interaction with the ImageMaster® ProSort is reduced to loading the machine with the measurement tray and starting the process. Much less operating errors occur because of the highly user-independent automation processes.

Pick and place of lenses by 4 gripper system
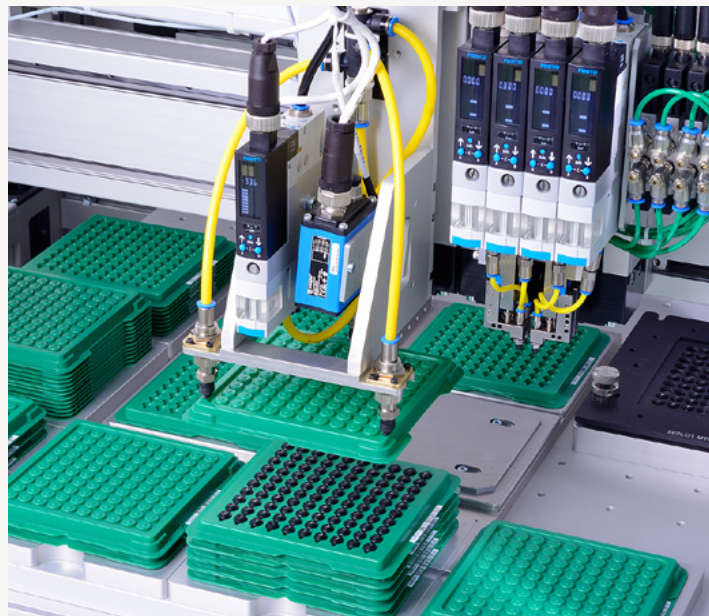
Finished output trays with lenses are stacked and covered with dust protection

TRIOPTICS' Propriety Software OptiSort Ensures Perfect Cross-System Data Exchange

## Smooth Interaction between TRIOPTICS's Software-powered Measurement Systems

The ImageMaster® PRO software MTF-PRO interacts smoothly with other TRIOPTICS software programs. The ImageMaster® PRO results file can be directly read by the sorting software OptiSort and its software interface is easy-to-use.

Detailed information of each lens – including seat position and measurement results – are stored and can be traced back. All measurement data of the lenses are automatically stored before they are transferred from measurement mode to output tray. The software tray generator is used to carefully program the positioning of tray sets. Open source code is used for fast and easy process optimization

Regarding peripheral safety functions, the system ensures constant monitoring and display of machine status. An automated audio and light signal indicates tray exchange while another audio signal indicates when processing is interrupted.
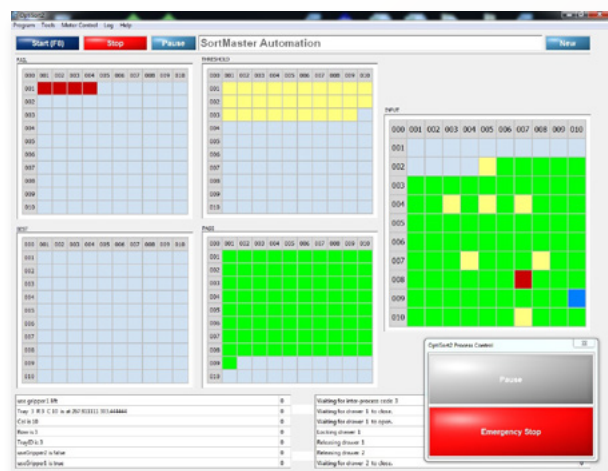
User interface of OptiSort software
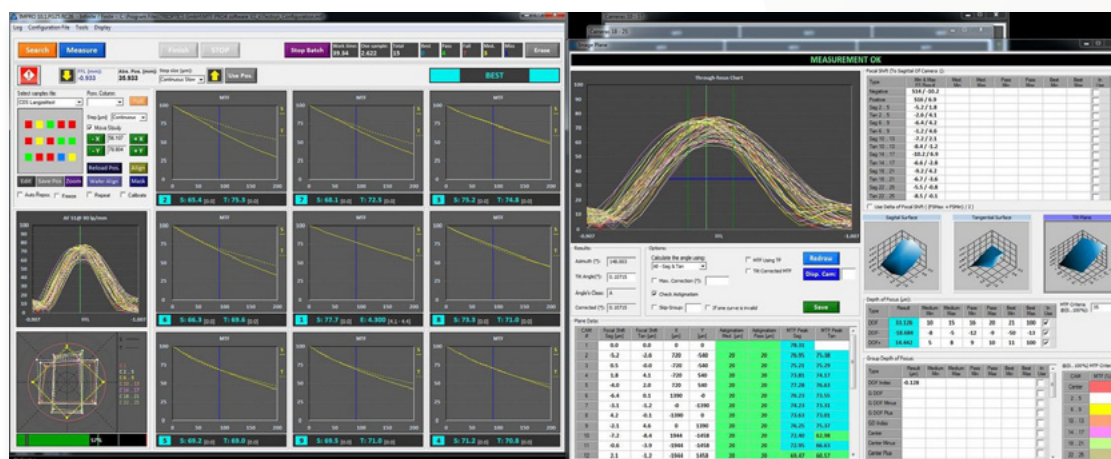
User interface of MTF PRO software

OptiSort Software Enhances the ImageMaster® ProSort Functions

A careful tuning of all functions is at the core of the ImageMaster® ProSort system. Several key software features enhance hardware control and algorithmic sorting versatility, as well as overall performance and usability.

Key Software Features

- **Better intuitive support inside the application for manual movement of axes**
  This includes controller connection check, error status readout, manual axis reset and referencing

- **Intelligent sorting algorithms and sample tray detection**
  ProSort detects sample types with varying sample dimensions via tray barcodes, as well as incompatible trays

- **Tray / stack configurator**
  Change-over tasks of supply stacks, sorting table fields and target stacks are managed easily and automatically. Easy switching between 2 – 4 sorting categories, and easy use of 'same category' multiple empty trays and target stack management

Technical Data

	ImageMaster® ProSort 10	ImageMaster® ProSort 9
Measurement time per sample IM PRO 10 / PRO 9	1.3 s *	1.5 s
Measurement time in two defocus positions per sample PRO 10 / PRO 9	1.8 s	2.0 s
Averaged sorting time per sample	1.5 s	1.5 s
Units per hour (UPH)	2400	2400
X/Y/Z Portal travel	530 mm × 510 mm × 160 mm	530 mm × 510 mm × 160 mm
X/Y/Z Portal repeatability	10 μm	10 μm
Maximum stage speed	600 mm / sec	600 mm / sec
Motor system	Servo motor	Servo motor
ImageMaster® ProSort Dimensions (Length x Width x Height)	2340 mm × 960 mm × 1900 mm	2340 mm × 960 mm × 1900 mm
Weight	490 kg	490 kg

* fast measurement speed is useful to measure in more defocus positions to cover the best cycle time performance of the system

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